

# PATENT COOPERATION TREATY

TRANSLATION

From the  
INTERNATIONAL SEARCHING AUTHORITY

## PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing  
(day/month/year)

Applicant's or agent's file reference

**WB05008SCM**

**FOR FURTHER ACTION**

See paragraph 2 below

International application No.

**PCT/JP2005/012731**

International filing date (day/month/year)

**11.07.2005**

Priority date (day/month/year)

**28.12.2004**

International Patent Classification (IPC) or both national classification and IPC

Applicant

**SHIN CATERPILLAR MITSUBISHI LTD.**

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP

Authorized officer

Facsimile No.

Telephone No.

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PCT/JP2005/012731

Box No. I

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language  
\_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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PCT/JP2005/012731

Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
<b>1. Statement</b>			
Novelty (N)	Claims	1-4	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-4	NO
Industrial applicability (IA)	Claims	1-4	YES
	Claims		NO
<b>2. Citations and explanations:</b>			
<p>Document 1: JP 7-305379 A (Shin Caterpillar Mitsubishi, Ltd.), 21 November 1995</p> <p>Document 2: CD-ROM of the specification and drawings annexed to the written application of Japanese Utility Model Application No. 12054/1993 (Laid-open No. 67559/1994) (Sumitomo Construction Machinery Co., Ltd.), 22 September 1994</p> <p>The invention of claim 1 does not involve an inventive step based on document 1 and document 2 cited in the ISR. Document 1 does not disclose the technical means of "a pressure sensor detecting the pressure of hydraulic oil supplied to the head side of the boom cylinder, and a pressure control valve controlling the center bypass pressure on the downstream side of the boom operation valve in an increasing direction according to the rise of pressure detected by the pressure sensor." However, document 2 pertains to a control circuit for a construction machine, and describes the point about providing a pressure sensor detecting the pressure of hydraulic oil supplied to actuator, and a safety valve integrated type negative cone diaphragm controlling the back pressure on the downstream side of the control valve in an increasing direction according to the rise of pressure detected by the pressure sensor. The inventions of document 1 and document 2 both belong to the same technical field of control circuits for construction machines equipped with a center bypass line. The boom cylinder described in document 1 obviously has the problem of the boom cylinder's operating timing becoming different and controllability worsening due to the load acting on its head side. Therefore employing the point described in document 2 in the boom cylinder control circuit of the invention described in document 1 could easily be conceived of by a person skilled in the art.</p> <p>The invention of claim 2 does not involve an inventive step based on document 1 and document 2 cited in the ISR. In addition to the discussion above, the arm cylinder described in document 1 also obviously has the problem of the arm cylinder's operating timing becoming different and controllability worsening due to the load acting on its rod side. Therefore employing the technical means described in document 2 in the arm cylinder control circuit of the invention described in document 1 could easily be conceived of by a person skilled in the art.</p>			

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

The invention of claim 3 does not involve an inventive step based on document 1 and document 2 cited in the ISR. In addition to the discussion above, document 2 describes the point that the safety valve integrated type negative cone diaphragm is formed with a safety valve integrated with the diaphragm for releasing negative control pressure for controlling the flow of pump discharge from the center bypass line. Therefore achieving the invention of claim 3 based on the inventions described in documents 1 and 2 could easily be conceived of by a person skilled in the art.

The invention of claim 4 does not involve an inventive step based on document 1 and document 2 cited in the ISR. In addition to the discussion above, document 1 describes the point that the flow control mechanism with pressure compensation increases the set load of the spring in response to the increase in negative pressure applied to the spring for pressure differential setting and to the arm cylinder's head side, and when the negative pressure at the head side exceeds a fixed value, it increases the set load of the spring to a value that essentially eliminates flow control pressure compensation. Therefore achieving the invention of claim 4 based on the inventions described in documents 1 and 2 could easily be conceived of by a person skilled in the art.